



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,564	04/06/2001	Yogendra Joshi	361007-000012	6497

24239 7590 06/14/2006

MOORE & VAN ALLEN PLLC
P.O. BOX 13706
Research Triangle Park, NC 27709

EXAMINER

PATEL, NIHIR B

ART UNIT	PAPER NUMBER
----------	--------------

3743

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/828,564	Applicant(s) JOSHI ET AL.	
	Examiner Nihir Patel	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04.06.2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 8-12, 14, 17-32 and 36-44 is/are pending in the application.
- 4a) Of the above claim(s) 4-6, 13, 15, 16 and 33-35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-32 and 36-38 is/are allowed.
- 6) ☒ Claim(s) 1-3, 11 and 39-44 is/are rejected.
- 7) ☒ Claim(s) 8-10, 12, 14 and 17-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on April 6th, 2006, with respect to claims **1-3, 8-12, 14, 17-22, 33-35 and 39-44** have been fully considered and are persuasive. The previous office action has been withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims **1-3, 43 and 44** are rejected under 35 U.S.C. 102(e) as being anticipated by DiGiacomo et al. (US 6,085,831).

4. **As to claims 1 and 43**, DiGiacomo discloses an apparatus that comprises a central evaporator **50** in contact with a heat dissipating component **27** (**see figure 1**); a condenser **53** in fluid communication with and extending around the periphery of the evaporator (**see figure 1**); a liquid coolant **65** partially filling the condenser and substantially filling the evaporator (**see figure 1**), a boiling enhancement structure disposed within the evaporator, wherein the enhancement structure is a porous component that provides re-entrant cavities and means for cooling the condenser (**see figure 1 and column 5 lines 25-40**).

5. **As to claim 2**, DiGiacomo discloses an apparatus wherein the cooling means comprises cooling fins **53** (**see figure 1**).

6. As to **claim 3**, DiGiacomo discloses an apparatus wherein the cooling fins extend from the condenser (see **figure 1**).

8. As to **claim 44**, DiGiacomo discloses a method step of providing a void in the evaporator to allow the coolant to directly contact the heating dissipating element (see **figure 1**).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims **11 and 39-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGiacomo et al. (US 6,085,831) in view of Anderson et al. (US 5,761,037).

12. As to **claim 11**, DiGiacomo discloses the applicant's invention as claimed with the exception of providing a boiling enhancement structure that comprises open-celled porous foam. Anderson discloses an apparatus that does provide a boiling enhancement structure that comprises open-celled porous foam. Therefore it would have been obvious to modify DiGiacomo's invention by providing a boiling enhancement structure that comprises open-celled

porous foam as taught by Anderson in order to minimize the resistance to a capillary flow and to allow to wick to actively participate in the evaporation process.

13. As to claim 39-42, DiGiacomo discloses the applicant's invention as claimed with the exception of providing a thermosyphon performance that is substantially independent of thermosyphon orientation. Anderson discloses an apparatus that does provide a thermosyphon performance that is substantially independent of thermosyphon orientation. Therefore it would have been obvious to modify DiGiacomo's invention by providing a thermosyphon performance that is substantially independent of thermosyphon orientation as taught by Anderson in order to extend the range of situations in which thermosyphon may be operated.

Allowable Subject Matter

14. Claims 23-32 and 36-38 are allowed.

15. Claims 8-10, 12, 14 and 17-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

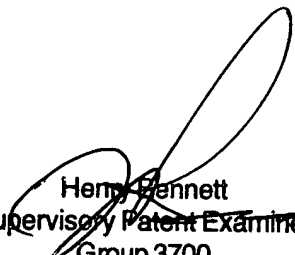
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nihir Patel whose telephone number is (571) 272-4803. The examiner can normally be reached on 7:30 to 4:30 every other Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on (571) 272-4791. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nihir Patel
Art Unit 3743


Henry Bennett
Supervisory Patent Examiner
Group 3700